

**BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2021-3-E**

In the Matter of:)	
Annual Review of Base Rates)	REBUTTAL TESTIMONY OF
For Fuel Costs for)	JOHN D. SWEZ FOR
Duke Energy Carolinas, LLC, Increasing)	DUKE ENERGY CAROLINAS, LLC
Residential and Non-Residential Rates)	

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John D. Swez. My business address is 526 S. Church Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed as Managing Director, Trading and Dispatch, by Duke Energy Carolinas, LLC ("DEC" or the "Company"). In that capacity, I lead the organization responsible for Power Trading on behalf of Duke Energy Corporation's ("Duke Energy") regulated utilities in the Carolinas, Florida, Indiana, Ohio, and Kentucky, as well as, generation dispatch on behalf of Duke Energy's regulated utilities in Indiana, Ohio, and Kentucky. In addition, I oversee Duke Energy's Meteorology group.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I received a Bachelor of Science degree in Mechanical Engineering from Purdue University in 1992. I received a Master of Business Administration degree from the University of Indianapolis in 1995. I joined PSI Energy, Inc. in 1992 and have held various engineering positions with the Company or its affiliates in the generation dispatch or power trading departments. In 2003, I assumed the position of Manager, Real-Time Operations. On January 1, 2006, I became the Director of Generation Dispatch and Operations with responsibility for (i) generating dispatch; (ii) unit commitment; (iii) 24-hour real-time operations; and (iv) plant communications related to short-term generating maintenance planning for Duke Energy's regulated utilities in Indiana, Ohio, and Kentucky. During the period of 2010-2017, I also managed the DEC Generation Dispatch function. I assumed my

1 current role on November 1, 2019. Finally, I am a registered Professional Engineer licensed
2 in the States of North Carolina and Indiana.

3 **Q. HAVE YOU PREVIOUSLY TESTIFIED OR SUBMITTED TESTIMONY BEFORE**
4 **THE SOUTH CAROLINA PUBLIC SERVICE COMMISSION?**

5 A. No.

6 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

7 A. The purpose of my rebuttal testimony is to respond to the testimony of Devi Glick filed on
8 behalf of Southern Alliance for Clean Energy and South Carolina Coastal Conservation
9 League (“SACE/CCL”) as it relates to DEC’s unit commitment and dispatch processes of
10 its coal generation stations and why the Commission should not accept the SACE/CCL
11 proposal to disallow a portion of DEC’s costs from this proceeding.

12 **Q. PLEASE PROVIDE YOUR GENERAL RESPONSE TO THE TESTIMONY OF**
13 **SACE/CCL WITNESS DEVI GLICK.**

14 A. Fundamentally, I believe the analysis presented by SACE/CCL Witness Glick is inaccurate
15 for many reasons, as explained herein. Although Witness Glick’s testimony contains many
16 improper assumptions and calculations that have no connection to actual utility operations,
17 the most concerning aspects of her analysis are outlined below:

- 18 1. Witness Glick’s analysis fails to recognize the fact that DEC unit commitment
19 seeks to minimize production costs to serve a given amount of customer demand
20 within reliability constraints;
- 21 2. Witness Glick’s analysis unreasonably assumes that the Company has an unlimited
22 amount of generation available at the lambda price;

3. Witness Glick improperly equates the lambda data to the total compensation of a generating unit, which is more like the analysis that one would make for generators in a Regional Transmission Organization (“RTO”) rather than the more appropriate calculations for entities outside of an RTO like DEC;
4. Witness Glick’s analysis fails to recognize additional physical costs of a generator that are required in order to produce energy, such as startup and no-load costs;
5. Witness Glick’s analysis fails to recognize the need to run units for reliability, operating reserves, or unit testing;
6. Witness Glick’s analysis selectively and improperly uses averaged data over a longer period, such as a month, in order to draw certain conclusions; and
7. Witness Glick’s analysis incorrectly implies that fixed costs should be included in unit commitment and dispatch decisions, which would potentially result in uneconomic commitment and dispatch outcomes.

Q. THE SACE/CCL TESTIMONY RECOMMENDS THAT THE COMMISSION DISALLOW \$3.8 MILLION IN EXCESS FUEL COSTS INCURRED AS A RESULT OF IMPRUDENT UNIT COMMITMENT DECISIONS. PLEASE RESPOND.

A. I disagree that the Company’s practices are imprudent in any way. As explained in more detail below, DEC commits the Company’s generating units on an economic basis after consideration of specific operational constraints. Further, the decommitment of generating units in the manner suggested by SACE/CCL would have been imprudent and would have caused detrimental effects to the reliability of the bulk electric system.

II. UNIT COMMITMENT AND DISPATCH

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF THE CONCEPTS OF UNIT COMMITMENT AND DISPATCH.

A. “Unit Commitment” or “Commitment” is the process of determining the optimal mix of generation units to be placed online to economically and reliably meet projected system needs. “Generation Dispatch” or “Dispatch” is the process of economically optimizing the MW output of individual generators once they have been placed online (through the unit commitment process) by evaluating the instantaneous balancing of load and generation. Stated differently, the commitment process determines which generating units should be placed online and dispatch determines how those units are operated once they are online.

Q. PLEASE DESCRIBE GENERALLY THE COMPANY’S APPROACH TO COMMITMENT AND DISPATCH.

A. The Company performs a detailed daily process to determine the unit commitment plan that is necessary to economically and reliably meet projected system needs over the next seven days. The Company utilizes a production cost model called GenTrader to determine an optimal unit commitment plan to economically and reliably meet system requirements. The GenTrader model minimizes the production costs needed to serve the projected customer demand within reliability and other system constraints over a period of time. In contrast, Witness Glick’s analysis attempts to calculate generator margin using system lambda data without regard to customer demand. Inputs to the Company’s GenTrader model include, but are not limited to, the following: 1) forecasted customer energy demand; 2) fuel commodity and emission allowance market prices; 3) contracted transportation costs; 4) contractual obligations including power market purchases and sales; 5) generating

unit parameters such as, but not limited to, minimum load, maximum load, heat rate, ramp rate, variable O&M, no-load costs, startup costs and shut-down costs; 6) planned unit outages and unit de-rates, and 7) reliability constraints such as units run to maintain day-ahead planning reserves or units required to run for transmission or voltage support. The GenTrader production cost model output produces the optimized hourly unit commitment plan for the 7-day forecast period. This unit commitment plan also provides the starting point for dispatch, but dispatch is then also subject to real time adjustments due to changing system conditions. The unit commitment plan is prepared daily and adjusted, as needed, throughout any given day to respond to changing real time system conditions. Witness Glick's analysis fails to recognize that the Company runs a unit commitment model that minimizes the total costs necessary to serve customers within reliability constraints. Instead, her analysis makes oversimplified assumptions, including decommitting large amounts of generation without regard to required levels of operating reserves, fails to consider units required to operate for reliability or unit testing, and lacks the ability to account for additional startup or cycling costs that are included in the Company's GenTrader model.

Q. WHAT COSTS ARE UTILIZED AS INPUTS FOR THE COMPANY'S UNIT COMMITMENT MODEL?

A. Only variable costs are utilized in the unit commitment model. Fixed costs—which are those costs that will be incurred regardless of whether a unit is committed—are not considered in the development of the unit commitment plan.

1 **Q. IS THE PRACTICE OF UNIT COMMITMENT PLANNING AND DISPATCHING**
2 **UNITS BASED ON VARIABLE COSTS CONSISTENT WITH GOOD UTILITY**
3 **PRACTICE?**

4 A. Yes. Fixed fuel-related costs are “sunk,” meaning that the cost will be incurred whether or
5 not a unit is committed and dispatched. It is therefore entirely reasonable, and consistent
6 with industry practice, to only utilize variable costs when making commitment and dispatch
7 decisions. Inclusion of fixed costs into unit commitment and dispatch decisions, as
8 suggested by Witness Glick,¹ is not appropriate and would result in less than economic
9 outcomes for customers.

10 **Q. WHAT IS SACE/CCL’S BENCHMARK FOR ECONOMIC UNIT COMMITMENT**
11 **AND DISPATCH?**

12 A. Witness Glick states in her testimony that “[w]hen a unit is committed economically, the
13 unit’s marginal cost of production is reasonably expected to be (a) lower cost than the
14 marginal cost of energy, called ‘system lambda’, over the next day or days.”²

15 **Q. DO YOU AGREE THAT SYSTEM LAMBDA IS AN APPROPRIATE MEASURE**
16 **OF WHETHER A UNIT COMMITMENT DECISION IS ECONOMIC?**

17 A. No. System lambda is a calculation of *instantaneous* system *incremental* cost, whereas
18 unit commitment decisions are appropriately made based on the *total* variable cost of
19 generation over a *multi-day* period. If a unit is projected to provide economic benefits to
20 customers over a multi-day period based on the total variable cost of generation, then the
21 unit is placed online. Once online, the unit is dispatched based on the instantaneous system

¹ Glick Direct Testimony, at 17, lines 9-10.

² Glick Direct Testimony, at 13, lines 8-11.

1 incremental cost. In other words, system lambda is the appropriate price signal for dispatch
2 decisions but not for a backward-looking unit commitment analysis. For these reasons,
3 Witness Glick misapprehends or misrepresents how generating units are actually
4 committed.

5 **Q. WITNESS GLICK MAKES A COMPARISON OF “MONTHLY PRODUCTION**
6 **COSTS RELATIVE TO SYSTEM LAMBDA.”³ PLEASE RESPOND.**

7 A. I fundamentally disagree with this comparison. Witness Glick’s analysis in this instance
8 utilizes average monthly numbers (average marginal production costs and average system
9 lambda) in a manner that ignores the way in which a utility actually operates its system on
10 an hourly basis to ensure reliable and economic service. The average system lambda does
11 not provide an accurate picture concerning the hours in which the units in question were
12 called upon to operate.

13 **Q. PLEASE RESPOND TO THE ALLEGATION THAT THE COMPANY**
14 **INCURRED \$3.8 MILLION IN AVOIDABLE FUEL COSTS WHEN USING**
15 **LAMBDA DATA.**

16 A. Witness Glick’s analysis assumes there is an almost unlimited amount of generation
17 available at the given lambda price. Witness Glick frequently states that “it would have
18 been less costly to serve retail ratepayers with *other* resources.”⁴ This is perhaps the biggest
19 fallacy within her analysis and with her disallowance recommendation; it assumes that
20 there is essentially unlimited generation available at this lambda price to replace the
21 generation that SACE/CCL proposes to shut off. This assumption—that there is a large

⁴ Glick Direct, page 8, lines 16-17.

1 amount of additional, unidentified, more economic generation that could have replaced
2 these decommitted units—is flawed because this additional generation either didn’t exist,
3 didn’t exist at the given lambda price, or a combination of both. Witness Glick does not
4 attempt to offer a credible or specific explanation of how the Company could have replaced
5 the approximately 6,934 MW of reliable generation energy and capacity (the sum total of
6 the capability of the coal units in question in this proceeding is 6,934 MW) provided by
7 the Company’s coal units nor does she identify which specific resources should have been
8 dispatched to serve customers absent these generators.

9 Further, the lambda data supplied to SACE/CCL represents the additional cost of a
10 generator necessary to serve the *next* additional MW of system demand. Thus, if lambda
11 in a given hour was \$20/MWh, this means that if there was 1 additional MW of demand,
12 the cost to serve that additional MW of demand would be \$20/MWh since the unit online
13 with an incremental cost of \$20/MWh would need to increase in output by 1 MW.
14 Alternatively, if there was 1 less MW of generation available, the cost of another unit to
15 increase its output to replace this amount would be again \$20/MWh. Witness Glick’s
16 conclusion that DEC could have de-committed almost 7,000 MW generation capacity and
17 replaced all of this missing generation with additional, unidentified generation all priced
18 equally at the lambda cost is simply incorrect.

19 Witness Glick’s testimony contains numerous other improper assumptions around
20 lambda, such as not including the components associated with a generator necessary to
21 serve an additional need (no-load and startup costs) and equating lambda to a Locational
22 Marginal Price (“LMP”) that is produced in an RTO. These analytical flaws are discussed
23 in more detail later in this testimony.

1 **Q. WITNESS GLICK OFFERS A COMPARISON OF CERTAIN UNITS' MONTHLY**
2 **AVERAGE COST OF GENERATION TO A MONTHLY AVERAGE SYSTEM**
3 **LAMBDA.⁵ IS THIS AN APPROPRIATE COMPARISON?**

4 A. No. I disagree with this comparison. First, as stated previously, system lambda is the
5 instantaneous marginal cost on the system and varies, sometimes substantially, over the
6 course of day and certainly over the course of a month. To average all instantaneous values
7 ignores the variability that is experienced during actual real-world operations. Averaging
8 these values over a month has less value because it ignores the fact that delivering energy
9 to a customer is a 24 hour a day, 7 days a week, 365 days a year obligation. Averaging
10 instantaneous data into a monthly comparison ignores the fact that the unit may have been
11 critical to supplying customer demand in shorter critical periods of time, but not in another
12 period. Stated simply, a unit with a higher average cost is still often critical in ensuring
13 reliability during a high price period on the system even where the average system lambda
14 is lower than the average cost of the unit. Witness Glick's testimony fails to consider the
15 actual minute by minute dispatch decisions made by the Company to ensure reliable and
16 economic service.

17 Second, the average cost of generation relied upon by SACE/CCL's analysis is also
18 misleading because these post-hoc average costs are not the prices on which a utility makes
19 dispatch decisions. A generating unit's marginal cost on which dispatch decisions are
20 made is lower than its average cost of generation because average cost of generation
21 includes startup fuel costs and no-load cost (which is the cost of fuel needed to maintain a

⁵ Glick Direct, at 28.

1 generator connected to the grid), all of which are sunk costs for purposes of dispatch
2 decisions.

3 **Q. DOES WITNESS GLICK'S TESTIMONY IGNORE OTHER ASPECTS OF THE**
4 **COMMITMENT AND DISPATCH PROCESS?**

5 A. Yes, Witness Glick's analysis does not consider the necessity of maintaining day-ahead
6 planning reserves, operating reserves, and regulating reserves in order to maintain system
7 reliability. The Company's unit commitment plans include 1,770 MW of these reserves,
8 which are available capacity above and beyond DEC's expected peak load to account for
9 the potential loss of a unit, regulating reserves, or load forecasting error. This capacity
10 must be online or available within a short period of time. At times, the Company must turn
11 on a coal unit to ensure that DEC has 1,770 MW of day-ahead planning reserves. The fact
12 that the Company must turn on a coal unit in order to maintain the 1,770 MW of required
13 reserves was not considered in the SACE/CCL analysis. By not including the instances
14 when the Company had to turn on a unit in order to maintain 1,770 MW of reserves, the
15 SACE/CCL analysis artificially increases any perceived cost of uneconomic commitment
16 of generating units at the expense of decreased reliability from operation with less than the
17 necessary level of reserves.

18 **Q. WHAT ADDITIONAL RELIABILITY ASPECTS OF THE COMPANY'S UNIT**
19 **COMMITMENT PRACTICES WERE NOT CONSIDERED IN WITNESS**
20 **GLICK'S ANALYSIS?**

21 A. Witness Glick's analysis fails to recognize that the specific units at Allen and Belews Creek
22 Stations, depending on the amount of DEC load and other system operating conditions, are
23 at times required to operate for system reliability. The specific unit(s) will tend to increase

1 with increasing customer demand and other transmission conditions. Witness Glick's
2 analysis assumes that these units could be decommitted in any hour, which is not accurate.

3 **Q. PLEASE RESPOND TO WITNESS GLICK'S ASSERTION REGARDING THE**
4 **COMPANY'S UNIT COMMITMENT PROCESS THAT CAUSED "THE**
5 **COMPANY TO KNOWINGLY INCUR OVER \$3.8 MILLION IN EXCESS FUEL**
6 **COSTS AT ALLEN, MARSHALL, CLIFFSIDE, AND BELEWS CREEK"**⁶

7 A. Witness Glick compared the marginal costs the Company used for the purpose of unit
8 commitment to the system lambda data supplied by the Company. I previously explained
9 how this was an inappropriate use of lambda because Witness Glick's analysis improperly
10 assumes that there was an almost unlimited amount of generation available at this single price.
11 However, another issue with this approach is that it ignores the real costs of commitment that
12 are associated with starting a unit (i.e., startup costs) and keeping the unit online but not related
13 to a change in generation output (i.e., no-load costs). Essentially Witness Glick's analysis
14 assumes that a marginal generating unit can be turned online with zero cost and be can be kept
15 online as well, again with zero cost since the SACE/CCL analysis compared the *total* variable
16 cost of generation over a *multi-day* period against only the incremental cost of moving a unit
17 up or down. This ignores the physical realities of startup and no-load costs, which can be
18 significant costs.

19 **Q. PLEASE FURTHER EXPLAIN THIS CONCEPT.**

20 A. As an example, using the cost of Cliffside 6 from the Company's Unit Cost Priority
21 database:

- 22 ▪ 844 MW net capability

⁶ Glick Direct, at 9 and 10.

- Startup cost of [REDACTED]
- No-load cost of [REDACTED]/hour
- Incremental cost at full load of [REDACTED]/MWh.

- The unit commitment evaluation determined that this unit was the next (marginal) unit to be committed, was turned on from an off-line state, and minimized customer costs within the reliability constraints given for a 5-day period.
- The unit generated 78,000 MWh over this 5-day period. (Full load 16 hours per day and min load 8 hours per day)

An analysis like the SACE/CCL analysis would compare the total production costs over the period to the incremental cost (lambda) and would not include the startup and no-load costs.

Thus, the total cost to run the unit for the period = [REDACTED] (startup cost) + 5 days x 24 hours x [REDACTED]/hour (no-load cost) + 78,000 MWh x [REDACTED]/MWh (incremental cost) = \$1,757,698

- The average cost of the unit = \$1,757,698 / 78,000 MWh = **\$22.53/MWh**
- The incremental cost to run the unit = [REDACTED]/MWh

The SACE/CCL analysis effectively compared the cost to run the unit, \$22.53/MWh, to a unit's incremental cost of [REDACTED]/MWh, ignoring the impact of startup and no-load costs and concluding that Duke Energy incurred avoidable excess costs. Thus, in this example, SACE/CCL would have concluded that there was an "excess cost to the customer" of \$302,640, calculated by taking 78,000 MWh x [REDACTED]/MWh - \$22.53/MWh). However, the unit was the next economic unit to be committed to serve the given customer demand and the physical costs necessary to run the unit, startup and no-load costs, are real costs necessary to run a generating unit and must be included. This simple example could be repeated for any marginal unit, which frequently are the coal units described in this testimony; the marginal

1 unit will always show a “loss” when compared to the lambda (incremental cost) due to the
2 fact that there are additional costs (startup and no-load costs) that are not included in the
3 lambda calculation. This would also be true for other types of marginal units.

4 **Q. ARE THERE ANY PARALLELS IN THE ENERGY INDUSTRY THAT FURTHER**
5 **HELP EXPLAIN THIS ISSUE?**

6 A. Yes. This comparison is exactly why in a RTO, there are credits that are paid to keep
7 generators whole in the situation where the unit is committed by the RTO, called Make Whole
8 Payments (in MISO) or Balancing Operating Reserve Payments (in PJM) in the event that the
9 revenues received by the unit were less than the costs to run the unit as defined by the units
10 offer. Thus, essentially what SACE/CCL did was compare the cost to run a generating unit
11 (the average cost) to the revenues received by a generating unit if it were in an RTO and if
12 LMP were set by a unit’s incremental cost without consideration of these additional
13 payments. DEC is not in an RTO and assuming that the Company’s lambda price data is
14 equivalent to an RTO’s LMP is an improper use of the system lambda data.

15 **Q. WHAT WOULD HAVE HAPPENED IF THE COMPANY DECOMMITTED THE**
16 **COAL GENERATING UNITS AS SUGGESTED BY WITNESS GLICK FOR THE**
17 **HOURS IDENTIFIED IN HER ANALYSIS?**

18 A. It is impossible to say with exact certainty the outcome in every hour since the Company
19 would have made every effort to maintain reliable electric service to its customers as well as
20 not have an increase in costs. However, I can say with certainty that decommitment of these
21 generators would have caused the Company to operate without adequate day-ahead planning
22 reserves, forced the Company to rely on non-firm energy purchases at times to maintain
23 customer reliability, required the Company to purchase more expensive energy than the

1 generators that would have been de-committed, and likely ultimately resorted to curtailing
2 customer load multiple times throughout this period. For example, in the SACE/CCL
3 analysis, on Friday, August 28, 2020 in hour 17, the analysis provides that 5,607 MW of
4 generation—approximately 25 percent of DEC’s generation on this day—should have be
5 decommitted. With the Company’s current generation stack, it is unreasonable to expect that
6 on a day in which the high temperature was 92 degrees Fahrenheit in Charlotte and DEC
7 system load peaked at 18,798 MW, 1,873 MW shy of the all-time DEC summer peak load,
8 that the Company should have turned off 5,607 MW of coal generation (Belews Creek 1, 2,
9 Cliffside 5,6, and Marshall 1,2,3,4) and that customers would not have suffered adverse
10 consequences as a result.

11 **Q. DO YOU HAVE ANY FINAL THOUGHTS ON WITNESS GLICK’S CRITICISM OF**
12 **DEC’S COMMITMENT PRACTICES OF ITS COAL UNITS?**

13 A. Yes. The Company’s commitment practices are prudent and allow the Company to provide
14 reliable electric service to its customers in the most economic manner possible. Witness
15 Glick’s analysis purports to discuss how the Company should have committed its coal
16 generating units during this period. Although I’ve already pointed out the other problems
17 with her calculations and assumptions, the basis of her testimony is a theoretical backward-
18 looking analysis. However, the Company cannot predict with 100% certainty the exact
19 customer demand or unit availabilities ahead of time. For example, the 1,770 MW of DEC
20 day-ahead planning reserves that the Company must maintain are used to protect the reliability
21 of customers in the event of a loss of a large unit(s) or load forecast error. After the fact, it is
22 easy to know the exact customer demand to the MW amount or easy to know whether the
23 Company needed to keep reserves available for the potential loss of a unit. Waiting to do this

analysis after the day's events have passed has no application to real-world operations where utilities must plan ahead and commit sufficient resources to match anticipated load and necessary reserves.

III. COAL UNIT COSTS

Q. PLEASE RESPOND TO SACE/CCL'S TESTIMONY CONCERNING "UNDERREPRESENTED COSTS"⁷.

A. Witness Glick refers to "underrepresented costs" (a term that is not explained) and then states "[i]f DEC updated its marginal costs to represent the actual production cost of each unit, its coal units would shift higher on the supply stack."⁸ While it is common sense that shifting more costs from fixed to variable will cause a resource to move higher in the stack, SACE/CCL fails to identify any specific cost that DEC is allegedly mis-categorizing.

When making unit commitment and dispatch decisions, the Company evaluates all generation cost types and appropriately categorizes them as fixed or variable. It would be inappropriate and potentially result in uneconomic commitment and dispatch outcomes to assign fixed costs as variable for inclusion into unit commitment and dispatch prices just to achieve a desired result of seeing coal units shift higher on the supply stack and "make alternative resources more cost-competitive on an operational basis."⁹

Q. DOES THE REFERENCE¹⁰ TO DEC WITNESS PHIPPS' DIRECT TESTIMONY ACCURATELY REFLECT THE CONTEXT OF HIS TESTIMONY?

⁷ Glick Direct, at 35.

⁸ *Ibid.*

⁹ Glick Direct, at 36.

¹⁰ Glick Direct, at 34.

1 A. No, it does not. DEC Witness Phipps' statement that "Company's Fixed/Variable coal rail
2 transportation contracts that expired June 30, 2021 did not provide ongoing customer value in
3 a declining coal burn environment"¹¹ is specifically addressing the question of "what
4 impacts [does] DEC anticipate due to the declines in *expected* coal burns"¹² and is meant
5 to provide context as to why DEC had negotiated new rail transportation rates instead of
6 simply extending the existing fixed/variable contract.

7 Regardless, the rail transportation contract effective during the test period included
8 both fixed and variable cost components. The estimated fixed and variable transportation
9 costs were appropriately included in the prior billing period estimated cost of consumption
10 used to determine the approved customer billing rates. The fixed costs were then
11 appropriately excluded from unit commitment and dispatch modeling because fixed costs
12 are not a factor in the Company's generator commitment decisions, which are appropriately
13 based on variable costs.

14 **Q. DOES WITNESS GLICK'S TESTIMONY DISCUSS OR ACKNOWLEDGE THE**
15 **ABILITY OF THE COMPANY'S COAL FLEET TO OPERATE ON NATURAL**
16 **GAS?**

17 A. No, despite being provided cost of generation data for natural gas, natural gas burns, natural
18 gas generation, and natural gas production costs related to dual fuel operations at Cliffside
19 Units 5&6, Belews Creek Units 1&2, and Marshall Units 3&4, Ms. Glick never discusses
20 or acknowledges the dual fuel operation of these units. In fact, during this fuel case's

¹¹ Direct Testimony of Brett Phipps, pg. 9.

¹² *Ibid.*

1 review period, approximately 14% of the total reported generation from the units at
2 question was from natural gas rather than coal.

3 **Q. PLEASE RESPOND TO WITNESS GLICK’S STATEMENT THAT THE ALLEN,**
4 **MARSHALL, CLIFFSIDE, AND BELEWS CREEK UNITS HAVE SOME OF THE**
5 **HIGHEST FUEL COSTS AMONG COAL PLANTS IN THE COUNTRY.**

6 A. Witness Glick’s comparison of the DEC coal units to all the coal units in the country is
7 oversimplified and fails to consider many aspects that would be necessary to make an
8 accurate comparison. As an initial matter, comparing the fuel costs of DEC units to all the
9 coal units in the United States is not relevant to a fuel proceeding. Units were compared
10 without regard to location, types of coal, or technology at each unit, among other factors.
11 For example, the units on the referenced list with the lowest coal costs are all located in or
12 near the coal producing regions such as in the state of Wyoming. It would only make sense
13 that since these units have low transportation costs and utilize lower cost Powder River
14 Basin coal, they would have a cheaper delivered fuel cost. Likewise, the SACE/CCL
15 comparison ignored the types of coal burned, plus the technology necessary at different
16 stations to burn the different coals.

17 **IV. GENERAL RECOMMENDATIONS**

18 **Q. HOW DOES THE COMPANY RESPOND TO SACE/CCL’S ASSERTION THAT**
19 **THE COMPANY DID NOT PROVIDE CONTEMPORANEOUS UNIT COST**
20 **INFORMATION?¹³**

21 A. In response to SACE/CCL DR 1-34b which requested that the Company “please provide
22 all reports that provide the contemporaneous unit cost projections and system marginal cost

¹³ Glick Direct, at 25.

1 projections” the Company provided the Unit Cost and Priority Report by day for the period
2 6/1/2020-5/31/2021. Included in this data was the daily Average Energy Cost to Commit
3 (\$/MWh) for each generation unit in the Carolinas system (DEC and Duke Energy
4 Progress, LLC) among other provided cost information. This data was delivered to
5 SACE/CCL on August 23, 2021, and it details the variable production cost of each unit by
6 day. The data in the Unit Cost and Priority spreadsheets is an output of the GenTrader unit
7 commitment model. The 7-day forecast sheets and the Unit Loading Report are also
8 outputs from the GenTrader model and do not output the modeled cost information but
9 instead show the unit commitment and dispatch plans by day by hour. Specifically, the
10 "Unit Loading Report" is a forecast of MWh loadings of each generating unit over the next
11 seven (7) days as determined by each GenTrader model run which is developed to
12 minimize total variable production costs over the seven-day planning period and include
13 inputs, such as unit startup costs, that are not part of an hourly marginal cost. As part of
14 its response to SACE/CCL DR 1-34, the Company also offered to meet with SACE/CCL
15 to walk through the layout of the Unit Cost and Priority data to explain terminology and
16 key features of the provided outputs.

17 **Q. DO YOU AGREE WITH THE SACE/CCL RECOMMENDATION THAT DEC BE**
18 **REQUIRED TO PROVIDE THE FULL PRODUCTION COST OF EACH UNIT**
19 **BROKEN DOWN BY FIXED AND VARIABLE COSTS.**

20 A. No. The Company accurately records the delivered coal commodity, transportation, and
21 other ancillary costs to the balance sheet as “Coal Stock” (inventory) each month to FERC
22 Account 151 (Fuel Stock) as required by FERC Accounting Guidelines. These costs are
23 than included as part of the going forward Weighted Average Cost of Inventory (“WACI”)

1 at each station. When coal is consumed it is valued at the current WACI in the month it is
2 consumed, and the fuel expense is then included for recovery through the South Carolina
3 fuel clause. Per FERC Accounting guidelines reagent costs are recorded separately in
4 FERC Account 154 (Reagents). Per the South Carolina fuel statute, the Company does not
5 request cost recovery related to byproducts through the SC fuel clause. Again, per the South
6 Carolina fuel statute the Company does not request cost recovery related to O&M through
7 the fuel clause.

8 **Q. DO YOU AGREE THAT THE COMMISSION SHOULD REQUIRE ADDITIONAL**
9 **REPORTING REQUIREMENTS AS RECOMMENDED BY SACE/CCL?**

10 A. No, the Company responded fully to SACE/CCL data requests and provided the following
11 data:

- 12 • The marginal variable costs of production by hour by day for the review period
13 including broken out by fuel, emissions, variable O&M, and startup fuel and O&M
14 (SACE/CCL DR 1-3 and DR 1-20)
- 15 • The 7-day forecast sheets and Unit Loading reports by hour by day for the review
16 period as produced as part of the daily GenTrader outputs as well as the Unit Cost
17 and Priority information by day for the review period showing the daily Average
18 Energy Cost to Commit (\$/MWh) for each generation unit in the Carolinas system
19 (DEC and DEP) among other provided cost information. (SACE/CCL DR 1-11 and
20 DR 1-34)
- 21 • Hourly data by day for the review period including total unit generation, marginal
22 fuel cost, variable O&M, system lambda, the Unit Loading Reports which are
23 specifically a forecast of MWh loadings of each generating unit over the next seven

(7) days as determined by each GenTrader model run. (SACE/CCL DR 1-3, DR 1-11 and 1-20)

Q. HAS THE COMPANY PROVIDED SUFFICIENT INFORMATION IN THIS PROCEEDING FOR PARTIES TO EVALUATE THE COMPANY'S FUEL COSTS AND PRACTICES?

A. Yes, the content and structure of the Company's application in this proceeding conforms to all applicable legal requirements and is substantially identical to that of all recent fuel rider applications. Additionally, the Company responded to extensive discovery requests from the parties. Furthermore, no party has alleged that the Company's fuel application failed to conform to applicable law or Commission order.

Q. WHAT DID THE NORTH CAROLINA UTILITIES COMMISSION ("NCUC") CONCLUDE WITH RESPECT TO THESE ISSUES IN THE 2021 DEC AND 2020 DEC AND DEP FUEL PROCEEDINGS?

A. The NCUC refused to adopt the recommendations of Ms. Glick in the 2020 DEC and DEP fuel proceeding and again, most recently, in the 2021 DEC fuel proceeding. Specifically, in the 2021 DEC fuel order, the NCUC confirmed "that the sufficiency of the Company's fuel application should be evaluated based on the requirements of applicable law."¹⁴ The NCUC further noted "the scope and level of detail contained in the Company's application, testimony, exhibits, and workpapers as filed in this proceeding conforms with applicable law and is consistent with prior applications that have been deemed sufficient."¹⁵ The NCUC has now rejected similar recommendations from a Sierra Club witness in the three

¹⁴ Order Approving Fuel Charge Adjustment, Docket No. E-7, Sub 1250 (June 17, 2021), at 14.

¹⁵ *Id.* at 14.

1 most recent fuel proceedings and this Commission should, for the same reasons, reject the
2 recommendation of Ms. Glick in this proceeding.

3 **Q. PLEASE RESPOND TO THE SACE/CCL RECOMMENDATION THAT “THE**
4 **COMMISSION DIRECT DEC TO CONDUCT A NEW RETIREMENT STUDY OF**
5 **EACH UNIT IN THE COMPANY’S FLEET.”¹⁶**

6 A. The recommendation that the Commission direct DEC to conduct a new retirement study
7 is well outside of the scope of this fuel cost recovery proceeding. As recently as June 28,
8 2021, in Order No. 2021-447, the Commission directed that “Duke shall perform a
9 comprehensive coal retirement analysis to inform development of their 2022 IRPs.” This
10 resource planning recommendation simply does not belong in this proceeding.

11 **Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?**

12 A. Yes, it does.

¹⁶ Glick Direct, at 39, lines 10-11.